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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,737	05/04/2001	Qian Huang	8828-053-999	8082

7590 04/17/2003  
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EXAMINER

DESTA, ELIAS

ART UNIT PAPER NUMBER

2857

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/849,737	Applicant(s) HUANG ET AL.	
	Examiner Elias Desta	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **R s p o n s    t o    A p p l i c a n t ' s    A m e n d m e n t**

### **Explanation of Rejection**

#### **Claim Objection**

1.    Claims 1 and 5 are objected to because of the following minor informality:
  - Claim 1: "... pertaining to audio data" should read "...measured audio data" since performing an operation on measured data is useful in a practical application and provides a basis for a statutory claim.
  - Claim 5: "... a software module that" should be modified "... a software module of said computer program that ..." the same reason as claim 1 above with changes to relate the module back to program.

#### **Claim rejection – 35 U.S.C. 101**

2.    35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.    Claims 13-16 are rejected under 35 U.S.C. 101 because of the following two reasons: Claims 13-16 are non-statutory since the process is not limited to one particular technological art. Further, a user can implement the same method with manual computation. With regard to claims 13-15, the claims are presented as an abstract idea with out reduction to a practical application (such as the concept of audio data).

Claim rejection – 35 U.S.C. 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-16 are rejected under 35 U.S.C. 102(e) as anticipated by Beigi et al. (U.S. Patent 6,246,982).

In reference to claims 1, 5 and 9: Beigi et al. teaches a method of computing a distance measure between multiple mixtures type probability distribution functions (see Beigi et al., Figs. 1-3 and Abstract). The method includes the steps of evaluating a joint distribution function (see Beigi et al., Figs. 4A and 4B, and column 2, lines 32-37). As the sum value of  $\mu_l$  and  $\gamma_k$  over the range of  $l=1$  to  $N$  and  $k=1$  to  $K$  equate to a value one is simply showing that the outcome of the sum of probability of events is always one.

With regard to claims 2, 6 and 10: as noted above in claims 1, 5 and 9, Beigi et al. further teaches that the first and second mixture probability density functions includes a Gaussian Mixture Model (see Beigi et al., Figs. 4A and 4B).

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With regard to claims 3, 7 and 11: as noted above in claims 1, 5 and 9, Beigi et al. further teaches that the element distance between the first and second probability distance functions includes Kullback Leibler Distance (see Beigi et al., column 5, lines 21-34).

With regard to claims 4, 8 and 12: as noted above in claims 1, 5 and 9, Beigi et al. further shows that the first and second probability distribution functions are Gaussian mixture models derived from audio segments (see Beigi et al., Fig. 1).

In reference to claim 13: as discussed in claim 1, Beigi et al. teaches a method for computing a distance between first and second mixture type probability distribution functions (see Beigi et al., column 5, line 48 to column 6, line 17). Similar to the claimed invention, Beigi et al. shows that  $W_1^A$  and  $W_M^A$  are the weighted factors in determining the overall distance. Further in Fig. 3, Beigi et al. shows that the inner collection distance is a weighted sum of distances between two or more Gaussian mixture probability distribution functions.

With regard to claim 14: as noted above in claim 13, Beigi et al. further teaches that the first and second mixture probability density functions include a Gaussian Mixture Model (see Beigi et al., Figs. 4A and 4B).

With regard to claim 15: as noted above in claim 13, Beigi et al. further teaches that the element distance between the first and second probability distance functions includes Kullback Leibler Distance (see Beigi et al., column 5, lines 21-34).

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With regard to claim 16: as noted above in claim 13, Beigi et al. further shows that the first and second probability distribution functions are Gaussian mixture models derived from audio segments (see Beigi et al., Fig. 1).

### Response to Argument

6. Examiner has made no concession on the nature of Applicant's response to the rejection of 35 U.S.C. 101. As noted above, the 35 U.S.C. 101 rejections now apply to claims 13-16. Claims 1 and 5 are objected to because of minor informalities. The remaining claims are now statutory.

In reference to claims 1-16: The applicant has indicated that the distance measurement between the probability density functions is carried out using Kullback Leibler Distance. Beigi et al. in column 5, lines 20-34 shows that the distance between the probability density functions also can be computed using Kullback Leibler Distance. Further, the method is used to carry out speaker classification or voice data (see Beigi et al., Abstract). Therefore, Applicant's assertion that Beigi et al. reference fails to show Kullback Leibler Distance is not overcome. Reconsideration and allowance is not granted.

### Conclusion

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Desta whose telephone number is (703)-305-3840. The examiner can normally be reached on M-Thu (8:00-6:30).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)-308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-5841 for regular communications and (703)-308-5841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-1782.

Elias Desta  
Examiner  
Art Unit 2857

-ed

April 3, 2003

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800